

**PATENT APPLICATION**

700650-1002

PATENT

**TRANSPORTABLE, POSITIONABLE, DIRECTIONAL**  
**INSECT CONTROL SYSTEM**

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**CLAIM OF PRIORITY**

This application claims priority of provisional Application Serial No. 60/423,543 filed November 4, 2002, currently pending.

**TECHNICAL FIELD**

This invention relates generally to insect control systems, and more particularly to an insect control system which is transportable between selected locations, positionable at each selected location, and directionable to effect insect control exactly where needed.

## BACKGROUND AND SUMMARY OF THE INVENTION

Insect control utilizing chemical agents is well known. As used herein the term insect controlling chemical agent includes pyrethrum, CEDARCIDE®, and other pesticides that need to be delivered by airborne misting. When properly applied insect controlling chemical agents are effective at controlling mosquitoes and other insects around homes, businesses, recreational areas, etc. The use of pyrethrum for insect control is highly desirable because it is a naturally occurring insect controlling chemical agent which is non-toxic to humans, pets and other animals, and plants.

Heretofore pyrethrum and other insect controlling chemical agents have typically been dispensed from permanently installed insect control misting systems. Permanently installed misting systems are advantageous in that they can be adapted to effect insect control throughout an entire property or facility. Permanently installed misting systems typically include automated control features which provide for the dispensing of pyrethrum and other insect controlling chemical agents at periodic intervals throughout the day.

Although permanently installed misting systems they also exhibit certain disadvantages. For example,

permanently installed misting systems are often relatively expensive to purchase and install. Permanently installed misting systems often do not lend themselves to removal and reinstallation at a different location. It will therefore  
5 be understood that permanently installed misting systems are not typically used at facilities that are either rented or leased.

The present invention comprises a transportable, positionable, and directionable insect control misting  
10 system which overcomes the foregoing and other difficulties that have long since characterized the prior art. In accordance with the broader aspects of the invention, an insect control system is transportable between different locations at which insect control is required. The insect  
15 control system of the present invention is also positionable at each selected location and is also directionable so that insect control can be effected precisely where needed. The insect control of the present invention is relatively inexpensive to purchase and use,  
20 particularly when compared to permanently installed insect control systems.

In accordance with more particular aspects of the invention, a transportable, positionable, directionable insect control mister comprises a frame supported on one

or more wheels for movement over the underlying surface, including rough surfaces and curbs. The frame may be provided with a handle to facilitate movement and positioning of the insect control system. The handle may  
5 be collapsible to facilitate transport and storage of the mister. The frame includes and/or supports a tank which receives an insect controlling chemical agent to be dispensed. The tank either comprises or is surrounded by a housing or shroud which also encloses a pump and a  
10 control system. The pump and the control system are powered by electricity received through typically a electrical cord, or by a rechargeable battery. A plurality of discharge arms are mounted on the housing and either comprise or support discharge passageways extending from  
15 the pump to discharge nozzles mounted at the distal ends of the arms. Extended discharge arms having lengths of 25 feet or more may also be used in the practice of the invention.

In the utilization of the insect control system of the  
20 present invention, the system may be transported to a location at which insect control is desired utilizing a pickup truck, SUV, or similar vehicle. At the selected location, the handle and the wheels are utilized to position the system at the precise location at which insect

control is desired. Prior to or after positioning, the tank is filled with an appropriate concentration of a selected insect control chemical agent. The pump and the control system are activated utilizing an electric power supply through an electric cord, or from a rechargeable battery. Upon activation, the pump discharges the selected insect control chemical agent from the tank through the nozzles mounted at the distal ends of the arms. The pressure at which the insect control chemical agent is discharged and the time duration over which the discharge occurs are regulated by the control system. At the completion of the discharge cycle, the insect control system may be relocated to another area of the selected location requiring insect control.

One of the advantages derived from the use of the invention comprises the fact that the insect control system thereof is adapted to be used indoors. Indoor applications of the invention are typically characterized by different operating parameters as compared with those that characterize outdoor utilizations. The control system utilized in conjunction with the insect control system of the present invention is adapted to regulate the operation thereof in accordance with the requirements of a wide variety of applications.

# **BRIEF DESCRIPTION OF THE DRAWINGS**

A more complete understanding of the present invention may be had by reference to the following Detailed Description when taken in connection with the accompanying  
5 Drawings, wherein:

FIGURE 1 is a rear perspective view of a transportable, positionable, directionable insect control system comprising the present invention;

FIGURE 2 is a right side view of the insect control  
10 system of FIGURE 1;

FIGURE 3 is a front perspective view of the insect control system of FIGURE 1;

FIGURE 4 is a rear perspective view of a transportable, positionable, directionable insect control  
15 system comprising a second embodiment of the present invention;

FIGURE 5 is a right side view of the insect control system of FIGURE 4; and

FIGURE 6 is a front perspective view of the insect  
20 control system of FIGURE 4.

## DETAILED DESCRIPTION

Referring now to the Drawings, and particularly to Figure 1, there is shown a transportable, positionable, and directionable insect control system 10 comprising a first embodiment of the present invention. The insect control system 10 includes a frame 12 which is supported on one or more wheels 14 for movement over the underlying surface. Dependent upon the design of the system 10, one or more stabilizers 16 may be located at the opposite end of the frame 12 from the wheels 14, and if used, function to stabilize the system 10 at a level orientation. Alternatively, the system 10 may be provided with multiple sets of wheels 14. A handle 18 is secured to the frame 12 and functions in conjunction with the wheels 14 to position the insect control system 10 of the present invention.

A separate tank 22 is supported on the frame 12 and is provided with a fill cap 24. The tank 22 is surrounded and enclosed by a housing 26. As will be appreciated by those skilled in the art, both the tank 22 and the housing 26 are formed from non-corrosive materials such as plastics or appropriate metals. Referring specifically to Figure 2, a pump (not shown) and a control system (not shown) are also contained within the housing 26 and may be further enclosed by an interior housing 28. The control system may



include one or more devices 30 for indicating the status of the system and/or one or more devices 32 for controlling the operation of the system, if desired.

5 As will be further appreciated by those skilled in the art, the pump and the control system of the insect control system of the present invention require operating power. Depending upon particular applications of the invention, operating power may be provided through a typical electric cord 34. Alternatively, electric power for the pump and  
10 the control system may be provided by a rechargeable battery which is mounted on the frame 12 of the insect control system 10. If used, the rechargeable battery may be contained within the housing 26, if desired.

Referring again to Figure 1, the insect control system  
15 of the present is provided with a plurality of discharge arms 36. The exact number of arms 36 which are utilized in any particular embodiment of the invention depends entirely upon the requirements of particular applications of the invention.

20 The discharge arms 36 may be fixedly supported on the housing 26. Preferably, however, the discharge arms 36 are directionable relative to the housing 26 so that the discharge therefrom is aimed precisely as required for maximum effect. The discharge arms 36 may also be adapted

to telescope inwardly or pivot downwardly to facilitate transportation of the insect control system 10. Each discharge arm 36 extends to a discharge nozzle 38 mounted at the distal end thereof. In the operation of the insect control system 10, the nozzles 38 function to discharge the selected insect control chemical agent in the form of a spray, mist, or fog.

In the drawings the nozzles 38 are shown directed upwardly. However, as will be appreciated by those skilled in the art, the nozzles 38 are positionable and directionable so that the spray discharged therefrom is directed in such a manner as to achieve maximum insect control effectiveness.

Each nozzle 38 is situated at the end of a conduit which extends from the pump so that the selected insect control chemical agent discharged from the pump is directed through the conduits for discharge from the nozzles 38. Each discharge arm 36 may comprise part of the conduit extending from the pump to its respective discharge nozzle 38. Alternatively, the discharge arms 36 may support separate conduits 40 extending from the pump to the discharge nozzles 38.

In the operation thereof, the insect control system 10 is transported to a selected location utilizing an

appropriate vehicle. At the selected location, the system 10 is removed from the vehicle and is thereafter positioned utilizing the wheel or wheels 14 and the handle 18. By this means, the insect control system 10 is positioned at the precise location at which insect control is required. After the insect control system is positioned, the arms 36 and the nozzles 38 may be positioned and/or directed relative to the housing 26 such that the discharge from the nozzles 38 is directed to achieve maximum insect controlling effect.

At any convenient time prior to utilization of the insect control system 10, the tank 22 thereof is filled with an appropriate concentration of a selected insect controlling chemical agent. The pump and control system contained within the housing 26 receive operating power either through an electric cord 24 or from a rechargeable battery. Upon operation of the pump, the insect controlling chemical agent is discharged from the tank through the nozzles 38 thereby effecting insect control. The pressure at which the insect controlling chemical agent is discharged and the time duration of the discharge are regulated by the control system in accordance with the requirements of particular applications of the invention.

When discharge is completed, the wheel or wheels 14 and the handle 18 may be utilized to reposition the insect control system 10 at a different area within the selected location requiring insect control. At each location the  
5 discharge from the nozzles 38 is directed for maximum effect. After all the areas of the selected location have been treated, the wheel or wheels 14 and the handle 18 may be utilized to return the insect control system to the vehicle for transport to a different location.  
10 Alternatively, the insect control system can be housing or stored at the original location for subsequent utilization.

Referring now to Figure 4, there is shown a transportable, positionable, and directionable insect control system 50 comprising a second embodiment of the  
15 present invention. Many of the component parts of the insect control system 50 are substantially identical in construction and function to component parts of the insect control system 10 illustrated in Figures 1-3, inclusive, and described hereinabove in connection herewith. Such  
20 identical component parts are designated in Figures 4-6, inclusive, with the same reference numerals utilized in conjunction with the description of the insect control system 10, but are differentiated therefrom by means of a prime (') designation.

The insect control system 50 includes a frame 12' which is supported on one or more wheels 14' for movement over the underlying surface, including rough surfaces, curbs, etc. Dependent upon the design of the system 50, one or more stabilizers 16' may be located at the opposite end of the frame 12 from the wheels 14, and if used, function to stabilize the system 50 at a level orientation. Alternatively, the frame 12' may be provided with multiple sets of wheels 14'. A handle 18' is secured to the frame 12' and functions in conjunction with the wheels 14' to position the insect control system 50 of the present invention.

A tank 22' is supported on the frame 12' and is provided with a fill cap 24'. The tank 22' comprises an integral part of a housing 26'. As will be appreciated by those skilled in the art, both the tank 22' and the housing 26' are formed from non-corrosive materials such as plastics or appropriate metals. Referring specifically to Figure 5, a pump (not shown) and a control system (not shown) are also contained within the housing 26' and may be further enclosed by an interior housing 28'. The control system may include one or more devices 30' for indicating the status of the system, if desired.

As will be further appreciated by those skilled in the art, the pump and the control system of the insect control system of the present invention require operating power. Depending upon particular applications of the invention, operating power may be provided through a typical electric cord 34'. Alternatively, electric power for the pump and the control system may be provided by a rechargeable battery which is mounted on the frame 12' of the insect control system 50. If used, the rechargeable battery may be contained within the housing 26', if desired.

Referring again to Figure 4, the insect control system of the present is provided with a plurality of discharge arms 36'. The exact number of arms 36' which are utilized in any particular embodiment of the invention depends entirely upon the requirements of particular applications of the invention.

The discharge arms 36' may be fixedly supported on the housing 26'. Preferably, however, the discharge arms 36' are directionable relative to the housing 26' so that the discharge therefrom is aimed precisely as required for maximum effect. The discharge arms 36' are secured on the housing 26 and are operatively connected to the output of the pump by quick disconnect couplings 37. The quick disconnect couplings 37 facilitate removal of the arms 36

thereby facilitating transportation and storage of the insect control system 50.

Each discharge arm 36' extends to a discharge nozzle 38' mounted at the distal end thereof. In the operation of the insect control system 50, the nozzles 38' function to discharge the selected insect control chemical agent in the form of a spray, mist, or fog. Each nozzle 38' is situated at the end of a conduit which extends from the pump so that the selected insect control chemical agent discharged from the pump is directed through the conduits for discharge from the nozzles 38'. Each discharge arm 36' comprises part of the conduit extending from the pump to its respective discharge nozzle 38'. Alternatively, the discharge arms 36' may support separate conduits extending from the pump to the discharge nozzles 38'.

In the operation thereof, the insect control system 50 is transported to a selected location utilizing an appropriate vehicle. At the selected location, the system 50 is removed from the vehicle and is thereafter positioned utilizing the wheel or wheels 14' and the handle 18'. By this means, the insect control system 50 is positioned at the precise location at which insect control is required. After the insect control system is positioned, the arms 36' and the nozzles 38' may be positioned and/or directed

relative to the housing 26' such that the discharge from the nozzles 38' is directed to achieve maximum insect controlling effect.

At any convenient time prior to utilization of the insect control system 50, the tank 22' thereof is filled with an appropriate concentration of a selected insect controlling chemical agent. The pump and control system contained within the housing 26' receive operating power either through an electric cord 24' or from a rechargeable battery. Upon operation of the pump, the insect controlling chemical agent is discharged from the tank through the nozzles 38' thereby effecting insect control. The pressure at which the insect controlling chemical agent is discharged and the time duration of the discharge are regulated by the control system in accordance with the requirements of particular applications of the invention.

When discharge is completed, the wheel or wheels 14' and the handle 18' may be utilized to reposition the insect control system 10' at a different area within the selected location requiring insect control. At each location the discharge from the nozzles 38' is directed for maximum effect. After all the areas of the selected location have been treated, the wheel or wheels 14' and the handle 18' may be utilized to return the insect control system to the



vehicle for transport to a different location. Alternatively, the insect control system can be housing or stored at the original location for subsequent utilization.

5 The insect control system 50 differs from the insect control system 10 in two additional respects. First, a rack 42 is provided at the front of the housing 26 to receive and support the arms 36, the attached portions of the quick disconnect couplings 37 and the nozzles 38 when the system 50 is not in use. In this manner transportation and storage of the system 50 is facilitated. The handle 10 18 is adapted for removal from the housing 26 and repositioning as shown in dashed lines in the drawings, again to facilitate to transportation and storage of the insect control system 50.

15 Although preferred embodiments of the invention have been illustrated in the accompanying Drawings and described in the foregoing Detailed Description, it will be understood that the invention is not limited to the embodiments disclosed, but is capable of numerous 20 rearrangements, modifications, and substitutions of parts and elements without departing from the spirit of the invention.